

Appl. No. 10/646,930  
Amdt. Dated June 6, 2007  
Reply to Office action of March 7, 2007

**REMARKS/ARGUMENTS**

This letter is responsive to the Office Action dated March 7, 2007.

In the Office Action, the Examiner rejected all of the claims under 35 U.S.C. 102(b) as being anticipated by Pearson (WO 02/055184). The Examiner stated that Pearson discloses an ANFO composition comprising ammonium nitrate, diesel oil and epoxidized soybean oil. The Examiner referred in particular to page 10 and the examples of this reference.

The applicant has carefully considered the Pearson reference raised by the Examiner and respectfully submits that the claims as currently on file are allowable over this reference. In particular, the applicant notes that Pearson relates to an emulsion explosive composition. The title of Pearson is "Emulsifiers for explosive compositions". As noted in the abstract, these emulsifiers may be suitable for use as an emulsifier in a water-in-oil emulsion explosive and other industrial products. In the field of the invention, it is specified that the invention relates to a novel chemical product suitable for use in emulsion explosives.

On page 1 of the application, it states as follows:

"Emulsion explosives (also known as "water-in-oil" emulsion explosives) are referred to as emulsions because they contain liquids that are not miscible in each other, so that one liquid is dispersed as droplets in the other liquid. In an emulsion, the liquid which is in droplet form is referred to as the discontinuous phase, whilst the other liquid is referred to as the continuous phase. If the emulsion is not stabilized, the droplets may separate out and the liquids separate into discrete layers and the explosive will fail to detonate. An emulsifier (also referred to as a surface

active agent or sulfactant) is added to stabilize the emulsion and prevent this formation of discrete layers."

The ammonium nitrate particles which are utilized in the manufacturer of the emulsion explosive are contained in the discontinuous aqueous phase. This is noted in Pearson at page 2, lines 15 – 20 wherein it is provided as follows:

"In the "emulsion phase" of an emulsion explosive, the discontinuous phase is commonly a supersaturated aqueous solution of an oxidizer such as ammonium nitrate (referred to herein as AN) although optionally, other nitrates may be included such as calcium nitrate (referred to herein as CN) and/or sodium nitrate (referred to herein as SN). The continuous phase is an organic compound which also acts as a fuel." (emphasis added).

Accordingly, while ammonium nitrate prills may be used in the production of an explosive composition according to Pearson, the ammonium nitrate prills are utilized to produce a supersaturated aqueous solution which is then dispersed as a discontinuous aqueous phase in the emulsion phase.

As noted by the Examiner, Pearson does refer to utilizing epoxidized soyabean oil (page 10, line 30). However, as noted, the epoxidized soyabean oil is utilized as a "multifoliate initiator" after the opening of the epoxide (e.g. to form glycols or ether-alcohols). The multifoliate initiator contains two or more arms upon each of which a "conjoining agent" may be attached (page 10, line 9 – 10). The conjoining agent joins together separate molecules of fatty acid esters either directly, or indirectly, by use of a multifoliate initiator (page 6, lines 6 – 8). These conjoined fatty acids produce the emulsifier which is utilized in the emulsion explosive (page 6, line 5). Accordingly, the epoxidized soyabean oil is utilized, after the rings have been opened, to join together

fatty acids and conjoining agents so as to produce an emulsifier. The emulsifier is used to inhibit the coalescence of the discrete droplets of the discontinuous aqueous phase, namely the phase produced using the ammonium nitrate prills (page 2, lines 25 – 26).

The Examiner did not refer to any particular example. The applicant has noted that in examples 11 and 13, the use of ammonium nitrate prills is referred to. As set out in these examples, the ammonium nitrate prills are used to produce the aqueous phase (i.e. the phase which does not contain the emulsifier). The aqueous phase is "an essentially clear solution". This would indicate that all or essentially all of the ammonium nitrate was dissolved. Accordingly, in the emulsion explosive of Pearson, the epoxidized soyabean oil would be utilized in an open ring formation and would be contained in a different phase than the phase produced by the ammonium nitrate prills.

In contrast, this application relates to an ANFO explosive composition. Both claims 1 and 31 refer in the preamble to an "ANFO explosive composition". In addition, in the text of each claim, after the transitional phrase "comprising", the applicant has specified that the inorganic oxidized particles are coated with the organic combustible fuel. In particular, in claim 1 it is stated that the ANFO explosive composition comprises "ammonium nitrate particles coated with an organic combustible fuel". Similarly, in claim 31, step (b) includes "combining the liquid mixture with the organic oxidizer particles to produce inorganic oxidizer particles coated with the liquid mixture".

An ANFO explosive composition differs from an emulsion explosive composition. It does not comprise an aqueous phase which is mixed into a continuous fuel phase. Instead, the ammonium nitrate or inorganic oxidizer salt particles remain as discrete particulate matter (i.e. they are not solubleized to produce an aqueous solution) which is then coated with the organic combustible fuel. Accordingly, the applicant respectfully submits that claims 1 and 31, and the claims dependent thereon, are not taught by Pearson.

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In view of the forgoing, favourable consideration of the application with a view to allowance is respectfully requested.

Respectfully submitted,  
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